



COORDINATING RESEARCH COUNCIL, INC.

5755 NORTH POINT PARKWAY, SUITE 265
ALPHARETTA, GA 30022
TEL: 678/795-0506 FAX: 678/795-0509
WWW.CRCAO.ORG

June 21, 2024

In reply, refer to:

CRC Project No. A-137

Dear Prospective Bidder:

The Coordinating Research Council (CRC) invites you to submit a written proposal to provide services for “Multi-scale Analysis of PM Sources Near Highways and Transportation Corridors” (CRC Project No. A-137). A description of the project is presented in Exhibit A, “Statement of Work.”

Please indicate your intention to bid at [this link](#) on or before **July 12, 2024** if you or your organization intends to submit a written proposal for this research program. CRC will answer technical questions regarding the Request for Proposal if they are submitted in writing at least one week before the proposal submission deadline here: [Q & A Link](#). CRC will then return written answers to all of the bidders, along with a copy of the original questions. Questions submitted within a week of the deadline may not be answered before the proposal submission deadline.

A CRC technical group composed of industry representatives will evaluate your proposal. CRC reserves the right to accept or reject any or all proposals.

The reporting requirements will be monthly progress reports and a summary technical report at the end of the contractual period. The reporting requirements are described in more detail in the attachment entitled “Reports” (Exhibit B).

The proposal must be submitted as two separate documents. The technical approach to the problem will be described in part one, and a cost breakdown that is priced by task will be described in part two. The cost proposal document should include all costs associated with conducting the proposed program. The technical proposal shall not be longer than 10 pages in length.

CRC expects to negotiate a cost-plus fixed fee or cost reimbursement contract for the research program.

Contract language for intellectual property and liability clauses is presented in Exhibit C and in Exhibit D, respectively.

Important selection factors to be taken into account are listed in Exhibit E. CRC evaluation procedures require the technical group to complete a thorough technical evaluation before considering costs. After developing a recommendation based on technical considerations, the costs are revealed and the recommendation is modified as needed.

Electronic copies of the technical and cost proposals should be submitted to:

Amber Leland
Coordinating Research Council
5755 North Point Parkway, Suite 265
Alpharetta, GA 30022

Phone: 678-795-0506
Fax: 678-795-0509
E-mail: aleland@crcao.org

The deadline for receipt of your proposal is **July 30, 2024**.

Yours truly,

Amber B. Leland
Deputy Director

CRC Project Statement of Work

“Multi-scale analysis of PM sources near highways and transportation corridors”

CRC Project Number: A-137

Background

Planning strategies for air quality attainment rely on modeling tools to estimate compliance with future national ambient air quality standards (NAAQS). Modeling tools such as Comprehensive Air Quality Model with Extensions (CAMx) have been calibrated and applied at ~12-km grid (which is referred as “Coarse Grid”), to estimate particulate matter (PM) emissions from primary sources (directly emitted into the atmosphere) as well as secondary sources (other emissions that lead to formation of PM in the atmosphere via chemical and/or photo-chemical reactions). Simulation models with “Coarse” (12-km grid) show that most regions within the US would be able to attain the $9\mu\text{g}/\text{m}^3$ PM_{2.5} NAAQS design value for the year 2032, with light-duty and even heavy vehicles being minor contributors of PM_{2.5} compared to other anthropogenic sources such as agricultural and non-mobile sources.

However, the 12-km grid models do not necessarily capture sufficiently fine resolution of the air quality and PM source contributions near highways and transportation corridors, which leaves regulation policies seeking environmental justice (EJ) for communities that live in the vicinity of such areas to subjective judgement and even speculation. Until recently, “finer-grid” air-quality models were difficult to calibrate due to limited ground-truth data, which primarily came from aerial scanning. With the recent launch of NASA TEMPO mission¹, which is currently (as of April 2024) in validation phase, air quality data at finer (~2km) grid is expected to soon become available broadly for nearly anywhere within the continental US. This in turn, can enable broadscale calibration of air quality simulation models at ~2km scale fine grid.

Objective

To demonstrate and document the methodology of utilizing satellite data for calibration of (~2km) fine-grid air quality simulation models capable of estimating source contributions of PM near highways and transportation corridors.

Scope of Work

The project will include two main phases, with the first phase focusing on “multi-scale” model calibration and validation, where a “Coarse” (~12km) grid of the broader area of continental US will provide the boundary conditions for modeling at a “fine” (~2km) grid for 4 to 5 select case study areas within the vicinity/surrounding major highways or transportation corridors. Fine-grid satellite data (which are measurements of “quantity” but not necessarily the “source” of pollutants) will be utilized to validate the fine grid air quality simulations. When constructing the fine grid models, brief review of latest available data on PM emissions from mobile sources (such as tire and brake wear) should be conducted. Second phase of the project will utilize the now-validated fine grid models to analyze the contributions of various source pollutants for both primary and secondary PM. Expected break-down of tasks includes:

(Phase I)

1. Selection of 4 to 5 areas (to be mutually agreed upon with CRC) surrounding or within vicinity of highways or transportation corridors that will become the demonstration case studies. To enable seamless integration with Tasks 2 & 3, this should be in “units of the coarse grid” (i.e. ~12km blocks aligned with the grid of Task 2).

2. "Coarse" (~12km) grid air quality models for broader area that will provide the boundary conditions for "fine" (~2km) grid air quality models of Task 3.
3. "Fine" (~2km) grid air quality models for the case study areas selected in Task 1, calibration of the fine grid models via satellite data.

(Phase II)

4. Analysis of source contributions of primary and secondary PM for the case study areas using the calibrated air quality models of Task 3.

Schedule

CRC expects that this effort should be performed over a 12-month period following contract execution. However, the contractor will propose an appropriate timeline for completing the study, including milestones for study deliverables. CRC requests that the cost of Tasks 1-4 be separately presented.

Deliverables

- A kick-off meeting/call between CRC and the contractor to discuss project scope and align expectations.
- Periodic communication (monthly) between CRC and the contractor to discuss preliminary results and identify any information gaps before finalizing findings and starting the final report.
- Monthly and other Intermediate reports/presentation decks upon completion of each milestone task.
- A final report, the draft of which will be reviewed by CRC before final release. The contractor is also encouraged to produce a peer-reviewed publication summarizing the main findings.

EXHIBIT B

REPORTS

MONTHLY TECHNICAL PROGRESS REPORTS

The contractor shall submit a monthly technical progress report covering work accomplished during each calendar month of the contract performance. An electronic Microsoft® Word compatible file (<1 MB) of the monthly technical progress report shall be distributed by the contractor within ten (10) calendar days after the end of each reporting period. The report shall contain a description of overall progress, plus a separate description for each task or other logical segment of work on which effort was expended during the reporting period.

FINAL REPORT

The contractor shall submit to or distribute for CRC an electronic (Microsoft Word) copy transmittable via email) of a rough draft of a final report within thirty (30) days after completion of the technical effort specified in the contract. The report shall document, in detail, the test program and all of the work performed under the contract. The report shall include tables, graphs, diagrams, curves, sketches, photographs and drawings in sufficient detail to comprehensively explain the test program and results achieved under the contract. The report shall be complete in itself and contain no reference, directly or indirectly, to the monthly report(s).

The draft report must have appropriate editorial review corrections made by the contractor prior to submission to CRC to avoid obvious formatting, grammar, and spelling errors. The report should be written in a formal technical style employing a format that best communicates the work conducted, results observed, and conclusions derived. Standard practice typically calls for a CRC Title Page, Disclaimer Statement, Foreword/Preface, Table of Contents, List of Figures, List of Tables, List of Acronyms and Abbreviations, Executive Summary, Background, Approach (including a full description of all experimental materials and methods), Results, Conclusions, List of References, and Appendices as appropriate for the scope of the study. Reports submitted to CRC shall be written with a degree of skill and care customarily required by professionals engaged in the same trade and /or profession.

Within thirty (30) days after receipt of the approved draft copy of the final report, the contractor shall make the requested changes and deliver to CRC ten (10) hardcopies including a reproducible master copy of the final report. The final report shall also be submitted as electronic copies in a pdf and Microsoft Word file format. The final report may be prepared using the contractor's standard format, acknowledging author and sponsors. An outside CRC cover page will be provided by CRC. The electronic copy will be made available for posting on the CRC website.

EXHIBIT C

INTELLECTUAL PROPERTY RIGHTS

Title to all inventions, improvements, and data, hereinafter, collectively referred to as (“Inventions”), whether or not patentable, resulting from the performance of work under this Agreement shall be assigned to CRC. Contractor X shall promptly disclose to CRC any Invention which is made or conceived by Contractor X, its employees, agents, or representatives, either alone or jointly with others, during the term of this agreement, which result from the performance of work under this agreement, or are a result of confidential information provided to Contractor X by CRC or its Participants. Contractor X agrees to assign to CRC the entire right, title, and interest in and to any and all such Inventions, and to execute and cause its employees or representatives to execute such documents as may be required to file applications and to obtain patents covering such Inventions in CRC’s name or in the name of CRC’s Participants or nominees. At CRC’s expense, Contractor X shall provide reasonable assistance to CRC or its designee in obtaining patents on such Inventions.

To the extent that a CRC member makes available any of its intellectual property (including but not limited to patents, patent applications, copyrighted material, trade secrets, or trademarks) to Contractor X, Contractor X shall have only a limited license to such intellectual property for the sole purpose of performing work pursuant to this Agreement and shall have no other right or license, express or implied, or by estoppel. To the extent a CRC member contributes materials, tangible items, or information for use in the project, Contractor X acknowledges that it obtains only the right to use the materials, items, or information supplied for the purposes of performing the work provided for in this Agreement, and obtains no rights to copy, distribute, disclose, make, use, sell or offer to sell such materials or items outside of the performance of this Agreement.

EXHIBIT D

LIABILITY

It is agreed and understood that _____ is acting as an independent contractor in the performance of any and all work hereunder and, as such, has control over the performance of such work. _____ agrees to indemnify and defend CRC from and against any and all liabilities, claims, and expenses incident thereto (including, for example, reasonable attorneys' fees) which CRC may hereafter incur, become responsible for or pay out as a result of death or bodily injury to any person or destruction or damage to any property, caused, in whole or in part, by _____'s performance of, or failure to perform, the work hereunder or any other act of omission in connection therewith.

EXHIBIT E

PROPOSAL EVALUATION CRITERIA

- 1) Merits of proposed technical approach.
- 2) Previous performance on related research studies.
- 3) Personnel available for proposed study – related experience.
- 4) Timeliness of study completion.
- 5) Cost.